

**MUNICIPAL AND INDUSTRIAL
WATER SUPPLY AND USES
IN THE
SOUTHEAST COLORADO
RIVER BASIN**

(Data Collected for Calendar-Year 2005)

Prepared by

**Utah Department of Natural Resources
Division of Water Resources**

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Dennis Strong, Director

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EXECUTIVE SUMMARY

This document describes the municipal and industrial (M&I) water supplies and uses for Southeast Colorado River Basin. Data is compiled by meeting with each public community and non-community system in the basin. The total M&I water supply and use for the basin is then tabulated by county. Portions of five counties comprise the Southeast Colorado River Basin: Garfield, Grand, Kane and portions of Summit and San Juan. The results reported herein represent totals for the 2005 calendar year.

The annual maximum potable water supply for the public community water systems in the basin is 22,951.9 acre-feet. Of this total, springs account for approximately 17 percent, wells for 74 percent, and surface sources for 9 percent. Table I presents this data.

TABLE I
SOUTHEAST COLORADO RIVER BASIN
Maximum Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

County	Springs	Wells	Surface	Totals
Garfield	548.7	716.1	0.0	1,264.8
Grand	1,353.1	10,031.2	0.0	11,384.3
Kane	0.0	1,085.8	0.0	1,085.8
San Juan	2,124.4	5,082.3	2,010.4	9,217.0
Basin Totals	4,026.1	16,915.4	2,010.4	22,951.9

Note: All values represent maximum system source capacities limited by water rights, hydrologic constraints and/or system constraints.

The basin's annual reliable potable water supply under present conditions for the public community systems is 12,481.1 acre-feet. The breakdown of this supply is presented in Table II on the following page.

TABLE II
SOUTHEAST COLORADO RIVER BASIN
Reliable Potable Water Supply for Public Community Systems
(Acre-Feet/Year)

County	Springs	Wells	Surface	Totals
Garfield	274.3	358.1	0.0	632.4
Grand	676.5	5,015.6	0.0	5,692.1
Kane	0.0	542.9	0.0	542.9
San Juan	1,062.2	2,541.2	2,010.4	5,613.7
Basin Totals	2,013.1	8,457.7	2,010.4	12,481.1

Total M&I water use can be divided into two categories: potable (culinary) and non-potable (secondary). Potable water is delivered by, and used within, public community, public non-community, self-supplied industrial, and private domestic systems. Separate irrigation companies typically deliver non-potable (secondary) water for residential, institutional, commercial and industrial uses. Some self-supplied industries utilize both potable and non-potable water from their own sources.

Table III, on the following page, indicates the total potable and non-potable M&I water use for all system types in the Southeast Colorado River Basin for the year 2005. Public community systems deliver the majority of the potable water in the basin. The table indicates that the total potable M&I water use in 2005 was 6,029.3 acre-feet. Total non-potable M&I water use in 2005 for the basin was 2,181.5 acre-feet. Therefore, total M&I water use in 2005, for the Southeast Colorado River Basin, was 8,210.8 acre-feet.

TABLE III
SOUTHEAST COLORADO RIVER BASIN
Total M&I Water Use for all Categories
(Acre-Feet/Year)

Source	Garfield County	Grand County	Kane County	San Juan County	Total
Potable Use					
Public Community Systems	210.6	2,741.3	188.1	1,254.2	4,394.3
Public Non-Community Systems	0.0	112.4	4.9	169.5	286.8
Self-Supplied Industries	0.0	0.0	0.0	525.3	525.3
Private Domestic	5.0	117.0	101.0	600.0	822.9
Total Potable	215.6	2,970.7	294.0	2,549.0	6,029.3
Secondary Use					
Secondary Irrigation Companies	357.8	510.8	0.0	608.8	1,477.4
Public Non-Community Systems	0.0	29.2	0.0	0.0	29.2
Self-Supplied Industries	0.0	674.9	0.0	0.0	674.9
Total Secondary	357.8	1,214.9	0.0	608.8	2,181.5
TOTAL WATER USE	573.4	4,185.6	294.0	3,157.8	8,210.8

Table IV, on the following page, shows water use data for the potable and non-potable categories of water delivered by the public community systems within the basin. Customers of public community systems received 4,394.3 acre-feet of potable water and 1,477.4 acre-feet of secondary or non-potable water for a total of 5,871.7 acre-feet of water deliveries. Categorically, the total water uses were 24% - residential indoor, 34% residential outdoor, 11% - commercial, 29% - institutional, and 2% - light industrial/stockwatering:

TABLE IV
SOUTHEAST COLORADO RIVER BASIN
Water Use for Public Community Systems
(Acre-Feet/Year)

	Garfield County	Grand County	Kane County	San Juan County	Total
Potable Use					
Residential Indoor	80.4	714.4	47.2	586.3	1,428.3
Residential Outdoor	40.9	814.1	87.6	343.4	1,286.0
Commercial	52.8	352.9	7.1	194.0	606.7
Institutional	31.4	859.0	14.2	102.6	1,007.1
Industrial/Stockwater	5.2	1.0	32.0	28.0	66.3
Total Potable	210.6	2,741.3	188.1	1,254.2	4,394.3
Secondary Use					
Residential	309.5	31.0	0.0	396.0	736.5
Commercial	18.8	0.0	0.0	0.0	18.8
Institutional	29.5	479.8	0.0	212.8	722.1
Industrial/Stockwater	0.0	0.0	0.0	0.0	0.0
Total Secondary	357.8	510.8	0.0	608.8	1,477.4
TOTAL WATER USE	568.4	3,252.1	188.1	1,863.0	5,871.7

Out of a total population of 24,173 in 2005, 17,437 people were served by the public community systems. For these systems, residential potable per capita water use calculates to 139 gallons per capita per day (gpcd). Similarly, non-potable residential water use calculated to 38 gpcd. The resultant total per capita water use is 177 gpcd for residential purposes within the public community systems of the basin. With the addition of commercial, institutional and industrial uses, the per capita water use for public community systems was 225 gpcd for potable uses and 76 gpcd for non-potable uses for a total use of 301 gpcd. In 2003, the Southeast Colorado River Basin Public Community systems total M&I use averaged 302 gpcd, statewide, the average was 267 gpcd. These values are shown in Table V, on the following page.

TABLE V
SOUTHEAST COLORADO RIVER BASIN
Average Per Capita Use
(Supplied by Public Community Systems)

CATEGORY	Average Per Capita Use (Ac-Ft/Yr)	Average Per Capita Use (GPCD)
Residential Potable Use	0.156	139
Residential Potable Plus Secondary Use	0.198	177
Total Potable Use	0.252	225
Total Potable Plus Secondary Use	0.337	301

Note: Total Potable categories include residential, commercial, institutional and industrial uses.

Table VI on the following page includes the “Municipal & Industrial water budget” for the basin. A water budget indicates the amount of water diverted for use within the system and the amount of water depleted from the system due to the use. Appendix E contains a table that indicates more specific details about the diversions and depletions from each individual community system within the basin.

TABLE VI
SOUTHEAST COLORADO RIVER BASIN
Municipal & Industrial Water Budget
(Acre-Feet/Year)

	Diversions			Depletions		
County	Indoor Use	Outdoor Use	Total	Indoor use	Outdoor Use	Total
Garfield	135.7	437.7	573.4	29.5	291.8	321.3
Grand	1,919.2	2,266.4	4,185.6	727.4	1,510.9	2,238.3
Kane	122.2	171.8	294.0	36.6	114.5	151.2
San Juan	1,600.3	1,557.4	3,157.8	809.7	1,038.3	1,848.0
Basin Totals	3,777.5	4,433.3	8,210.8	1,603.3	2,955.5	4,558.8

INTRODUCTION

Authority

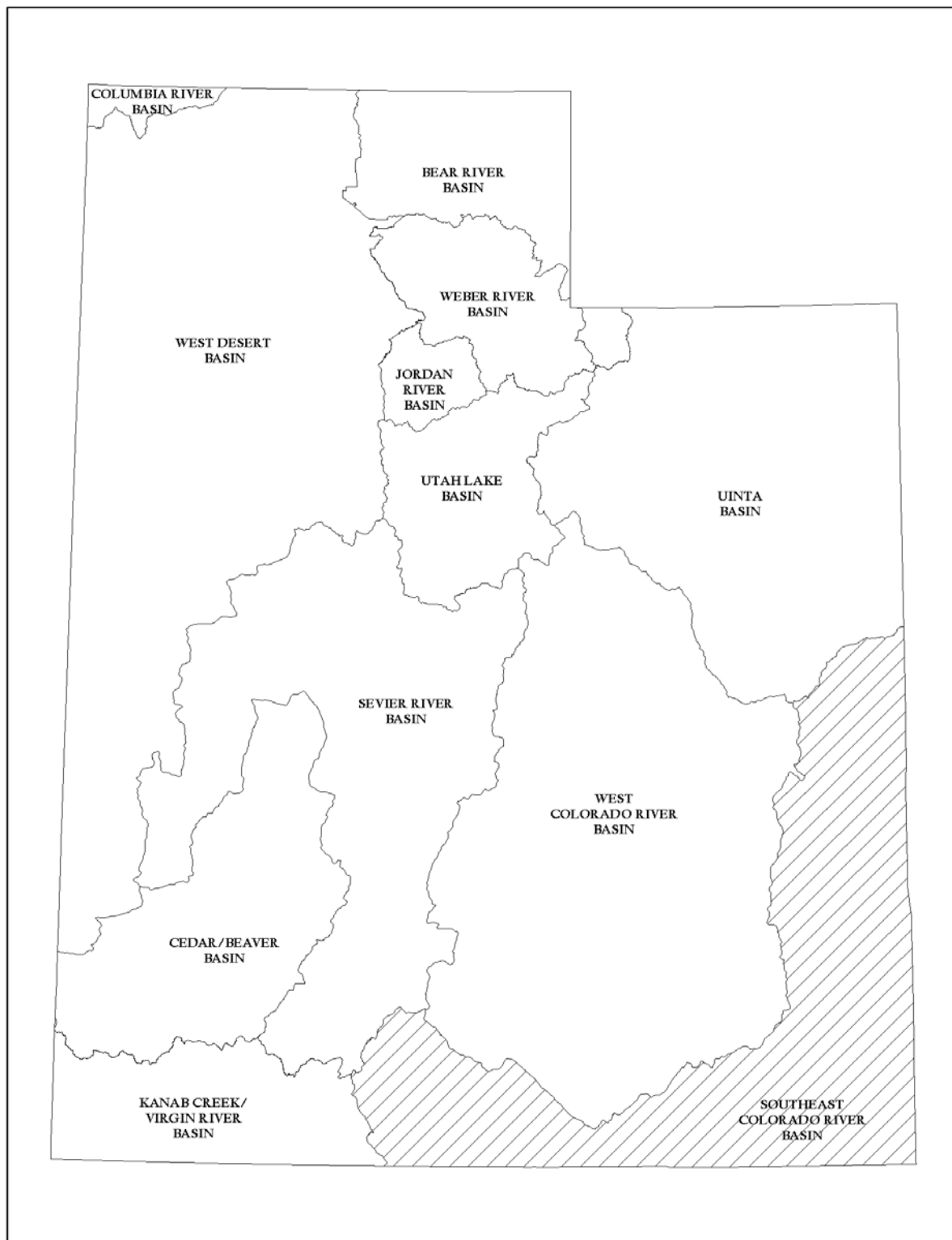
The Utah Division of Water Resources (DWRe) has the overall responsibility for completing studies, investigations, and plans to assist the responsible development and utilization of the water resources of the state of Utah. The State Water Plan, prepared and distributed in early 1990 by the division, provided the foundation and overall direction to establish and implement the state policy framework of water management. As part of the state water planning process, the division prepares detailed plans for each of the 11 hydrologic basins in the state. The Southeast Colorado River Basin is one of these 11 basins. A location map of the Southeast Colorado River Basin is shown in Figure 1 on the next page.

Each basin water plan identifies potential conservation and development projects and describes alternatives to efficiently satisfy the water needs of that basin. As part of this effort, background data reports are completed for each river basin. These include a Water-Related Land Use Report and a Municipal & Industrial Water Supply & Use Report.

Scope

As stated earlier, the subject of this M&I report is a determination of present M&I water supplies and uses within this basin. The data presented in this report may be used in the State Water Plan for the Southeast Colorado River Basin as well as other division reports and studies. Information considered for this report also includes related investigations recently completed by the DWRe and the Utah Division of Water Rights (DWRi).

Figure 1. Location of Southeast Colorado River Basin



Data Collection

This study was initiated in April 2006. The 2005 *Municipal and Industrial Water Use Forms*, distributed by the DWRi, in cooperation with the DWRe and the Utah Division of Drinking Water, were used as the basis for the study. In all counties, the data collection process is as described in the following section, *Water Supply and Use Methodology*. Water rights discussions presented herein were prepared based on information from Marc Stilson, Regional Engineer from the State Engineer's Office for the Southeast Colorado River Basin.

General Description of the Basin

The Utah portion of the Southeast Colorado River Basin includes approximately 10,890 square miles of land in the southeast corner of the state. Utah's portion of the basin extends from the Book Cliffs on the north, the Utah/Colorado state lines on the east and the Utah/Arizona state lines on the south to the basins eastern boundary. The eastern boundary follows the Timber Mountains between the Paria drainage and Johnson Creek drainage. It continues along the Pink Cliffs in Bryce Canyon, then turns southeast across the Kaiparowits Plateau and Fiftymile Mountain to the confluence of the San Juan River and the Colorado River (NOW IN Lake Powell. The boundary continues northerly up the Colorado River to the confluence of the Green and Colorado Rivers. Above this point, the boundary follows the divide between these two rivers to the north boundary at the Book Cliffs.

The basin spans parts of Kane, Grand, Garfield and San Juan Counties. The five hydrologic study areas that form this basin are the Colorado, Delores, San Juan, Wahweep and Paria. Elevations within the basin vary from high points of 12,721 feet above mean sea level (msl) in the La Sal Mountains east of Moab and 11,360 feet msl at Abajo Peak in the Blue Mountains to a low of 3,700 feet msl on Lake Powell. Notable features of the basin include Arches National Park, portions of Bryce Canyon National Park (below the rim), Canyonlands National Park (Island in the Sky and the

Needles districts), Glen Canyon National Recreation Area, and the new Grand Staircase-Escalante National Monument.

The principal river system in the basin is the Colorado River and its tributaries; the San Juan, Dolores, and Paria Rivers. The southern portion of the Colorado River (situated within the basin), is now a part of Lake Powell. Easily recognized divisions between this basin and the West Colorado River Basin are marked by the confluence of the Colorado and San Juan Rivers (in Lake Powell) and again at the confluence of the Green and Colorado Rivers. Figure 2, on page 5, is a detailed map of the basin.

The basin currently has 15 public community water systems and 7 unregulated Indian systems. The public community systems serve 17,437 people (over 72% of the 24,173 total basin population). Figure 3, on page 6, shows the location of these systems. In addition, the basin has 26 public non-community systems. These systems serve National Recreation Areas, State Parks, summer home communities, campgrounds, isolated commercial establishments, and roadside rest stops and parks. The basin also has 8 self-supplied industries.

M&I water use is steadily increasing within the basin. Moab is currently experiencing the greatest growth. Tourism drives most of this growth and this trend is likely to continue well into the future.

Figure 2. Southeast Colorado River Basin Drainage Map.

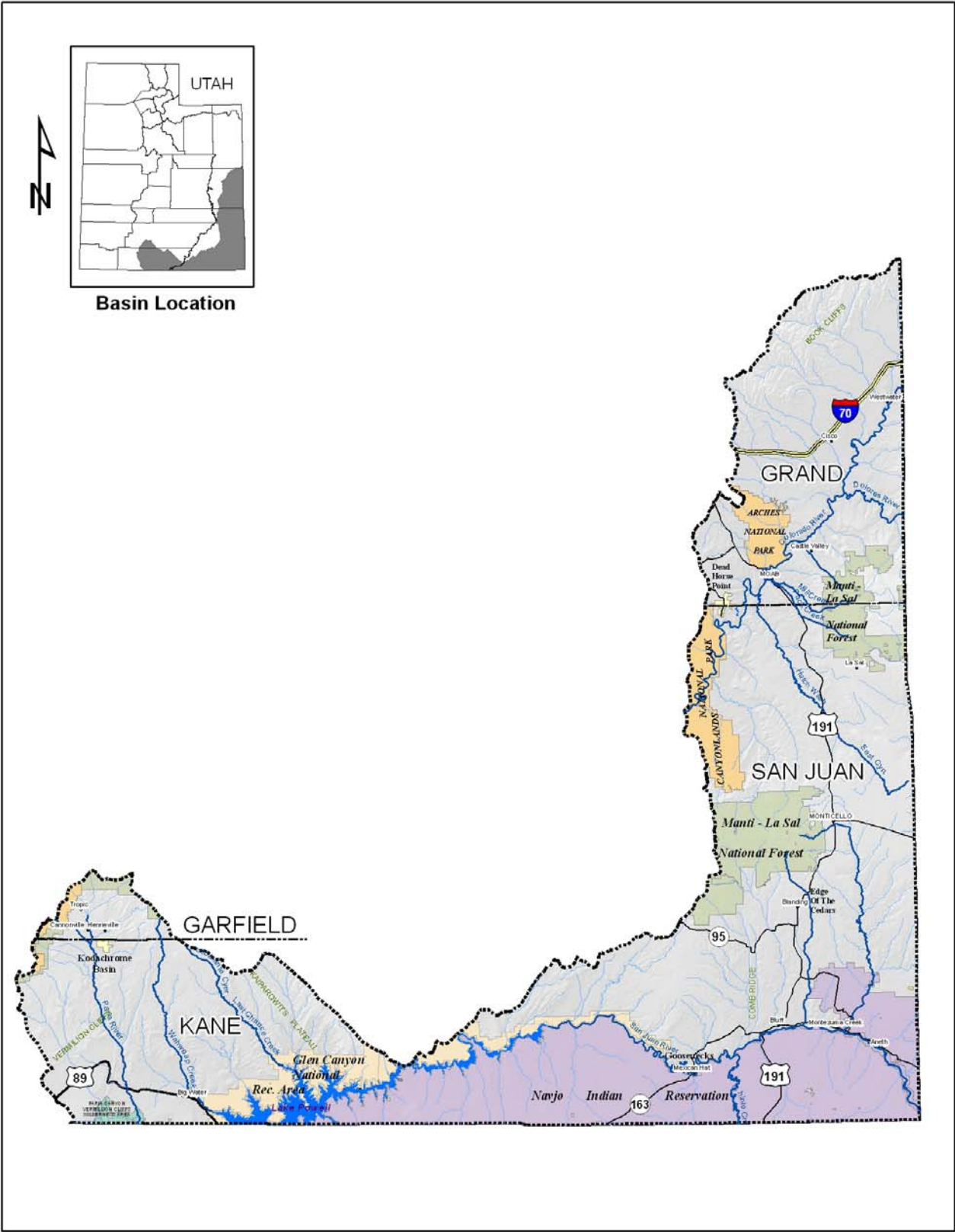
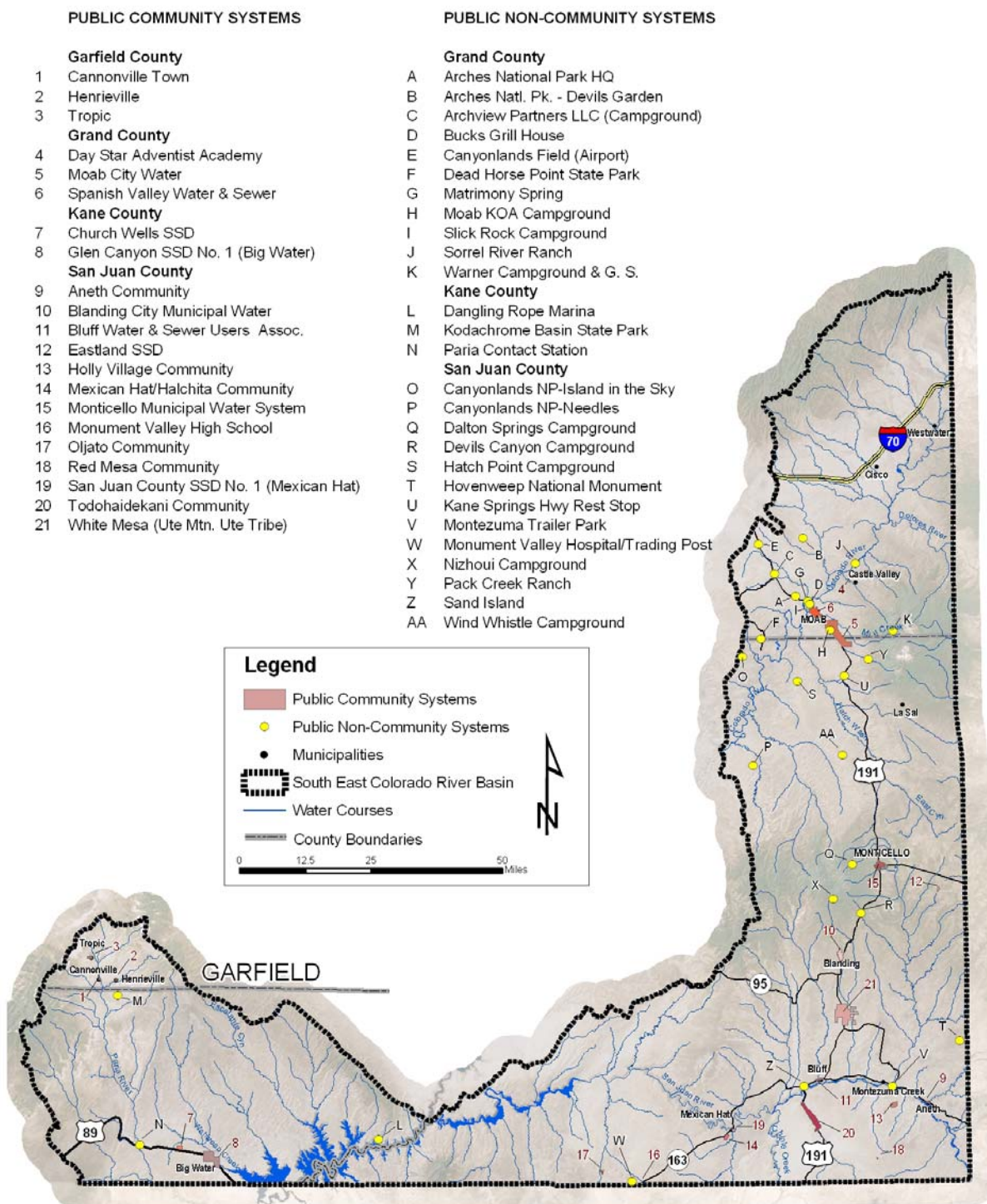


Figure 3. Location of Public Community Systems



WATER SUPPLY AND USE METHODOLOGY

Background

Over the past 45 years, the Utah Division of Water Resources (DWRe) has employed various procedures to obtain municipal and industrial water use (M&I) data.

In recent years, these procedures have become more comprehensive. When the division began water planning in the 1960's, available data consisted mainly of supplies and uses for the state as a whole. At that time, Utah's agricultural water uses far exceeded M&I uses. M&I water use was calculated simply by multiplying estimated per capita water use rates by census population data.

By the early 1980's, M&I diversions made up a larger percent of all statewide water uses and the entire water community increased their focus on M&I water supplies and uses. The Utah Division of Water Rights (DWRi) launched a program to collect yearly, statewide M&I data from each public community water system. The procedure involved mailing a survey designed to query major public water suppliers about their sources of water supply. Additionally, the United States Geological Survey (USGS) began M&I water use studies. The DWRe relied on both data sources in its planning efforts by the late 1980's.

With the preparation of the State Water Plan Basin reports, and the increasing focus on water conservation, the DWRe saw the need to verify and improve the quality and quantity of the available data. The first method used included assisting the DWRi in the improvement of their M&I data collection program. Secondly, the DWRe began verifying the accuracy of the data through yearly field surveys described in the following four sections.

Present Methodology for Community Water Systems

Each year, the DWRe targets several hydrologic basins for M&I water supply and use analysis. The most recent water use information supplied by the DWRi is the basis used to begin the study. Prior to 2003, this information was submitted using a standard form by each water supplier. An example of the 2003 water use data form for the Duchesne County Upper Country WID Water System is found in Appendix D. Since 2003, the program has been updated, allowing for the water suppliers to electronically submit their data.

The DWRe staff contact the manager or operator of each community water system (as defined by the Utah Division of Drinking Water) to schedule a data collection and analysis meeting. These meetings are necessary because data often is not reported (either on the water use forms or electronically) in the detail required for a complete M&I water use study. During these meetings, staff clarifies and collects additional data as needed. Total water supply and usage of the water systems are calculated based on information gathered during these meetings. When data is not available, it is necessary to estimate a part or all of the system use.

A secondary objective of these meetings is to instruct the operator or manager on how to most accurately and effectively complete the water use data form and/or submit their information electronically. This methodology has been used since 1992.

Water Supply

Two factors define the potable water supply: maximum water supply available under present conditions and reliable water supply. The maximum water supply available under present conditions is defined as the water resource that is presently developed. It is limited by a mechanical constraint (such as pump capacity or pipe size), a hydrologic constraint (such as reliable stream flow or groundwater safe yield) or a legal constraint (such as a water right or contract). The lesser amount of water supply, due to these three constraints, is considered to be the maximum water supply

available under present conditions used in this analysis. The determination of well pump capacities, average annual spring flow estimates, treatment plant capacities, and water right information aid in the calculation of this value. It should be noted that, due to the complexity of water rights, contracts, exchanges, etc., a detailed search of water right limitations associated with each entity is not within the scope of this study.

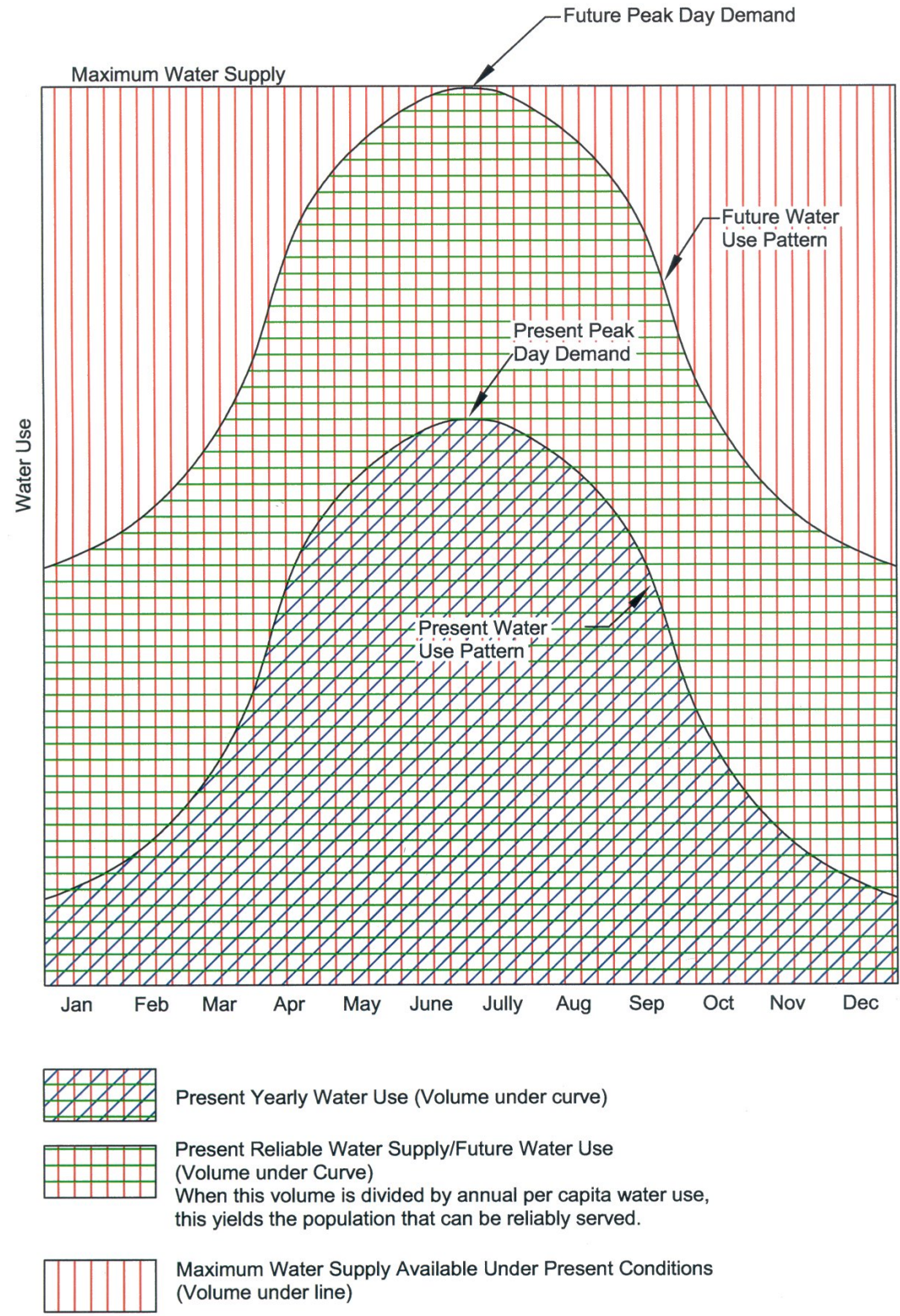
The reliable potable water supply is defined as the capacity to meet peak day demands, expressed as an annual volume. It is valuable in determining future water supply capacities of the particular community water system sources (wells, springs, etc.). The reliable potable water supply is calculated by adding together the maximum water supply capacity of surface sources, one-half of the maximum yield of wells or their pump capacities (unless otherwise indicated by the system manager), and a percentage of the average annual flow of spring sources. The percentage of the spring source flows ranges between 50% and 100%. The determination of the percentage is based on information obtained concerning the yearly fluctuations of the springs.

Figure 4, on page 11, graphically presents the relationship between the maximum water supply and the reliable potable water supply of a system. By quantifying the maximum and the reliable potable water supply of a system, the population that a system can potentially support can be determined. The current total yearly water use is the volume under the lower curve (*Present Water Use Pattern*). The future total yearly water use is the volume under the upper curve (*Future Water Use Pattern*). This total is equivalent to the reliable potable water supply.

The maximum water supply under present conditions is the volume under the upper line (Maximum Water Supply) in Figure 4. Because this amount is a yearly volume based upon a maximum daily flow rate (limited by the water right or system capacity), the line passes through the peak day demand point on the future water use curve (Future Peak Day Demand). Due to this, and the fact that most culinary water system storage tanks are designed to store only about one day's water demand, not all of the total maximum water supply is available to meet future water needs.

Therefore, the reliable potable water supply, rather than the maximum water supply, is the limiting factor in determining when future water demand equals current supplies.

Figure 4. Water Supply and Use Hydrograph



Reliable secondary water supply is defined to be equal to the secondary use determined for each community system. The methodology for calculating secondary use is explained below under *Residential Use*.

Water Use

Present water use, as defined herein, is the developed water supply that is actually diverted into the distribution system from surface or subsurface sources. Water use is divided into four categories: residential, commercial, institutional and industrial. For comparative purposes, the DWRe chose these categories to correlate with the USGS categories of domestic, commercial, industrial, and mining.

The DWRe's residential category is equivalent to the USGS domestic category and includes water used for both indoor and outdoor purposes at residences. The USGS commercial category is equivalent to the DWRe's combined commercial and institutional categories. The DWRe's commercial category includes water use for retail establishments and businesses. The DWRe's institutional category includes water use for government facilities, military facilities, schools, hospitals, churches, parks, cemeteries, golf courses, etc. The DWRe's industrial category is equivalent to the combined USGS categories of industrial and mining that includes a wide variety of water uses associated with businesses that produce a specific product (including stockwatering).

Residential Use

The staff collects data about the number of residential connections and the amount of water used by those connections from a water system representative. Water use in this category is divided into three subcategories: culinary-outdoor, culinary-indoor, and secondary-outdoor. While most systems will meter the total residential water use, these subcategories are rarely metered separately. Therefore, the division usually estimates these subcategory totals.

Typically, culinary indoor use will be estimated first. One method to estimate the indoor use is to review residential meter reading totals for the system from the winter months, if available. It can be assumed that the water used in winter months is for indoor use only, since outdoor watering does not typically occur during the winter months. This estimated indoor water use is then used to determine the total yearly indoor use.

When the above method does not yield a reasonable value for indoor use, the indoor use per capita water use for a system can be estimated by using an equation that was developed in a detailed residential study, "Identifying Residential Water Use", completed by the DWRe in 2001. The mathematical equation that was developed for per capita indoor water use is as follows:

$$\text{GPCD}_{\text{Indoor}} = 90.3 / P_{\text{PH}} + 42.3$$

Where:

$\text{GPCD}_{\text{Indoor}}$ = Gallons per Capita Day (per capita indoor water use)

P_{PH} = Persons per Household (US Census Bureau)

The total yearly indoor water use is then calculated for the system by multiplying the result of the above equation by the current population. Outdoor culinary water use can then be estimated by subtracting the total yearly indoor water use from the given total residential culinary water use.

Because very few entities meter secondary outdoor water use, the DWRe staff estimates the outdoor secondary water use by using the average lot size, percent irrigated, percent of residences that are supplied by separate secondary (pressurized and ditch) irrigation systems, water right-duty rates (volume of water required for turf growth) in the area, and other related information for each system. In determining residential secondary use, care is taken to not include irrigation water use for small pastures or farm fields that can often be found adjacent to residences, particularly in rural communities.

Commercial Use

For most systems, the system operator can separate metered commercial water use data from the total water use. In cases where this data is not available or is extremely difficult to obtain, the DWRe staff attempts to estimate commercial water use by inventorying commercial businesses in the area and using published commercial water use estimates. The Utah Division of Drinking Water and the Utah State Water Lab, among others, publish these estimates. In some rural communities where there are a relatively small number of commercial connections, the businesses are visited individually by DWRe staff and asked about their water use.

Some commercial facilities use secondary water to irrigate outside landscapes. This is especially typical for commercial golf courses. As in these cases many times, secondary water is not metered. The DWRe staff estimates this use by multiplying the size of the irrigated area by a water right-duty rate or the evapotranspiration rate (ET). The ET indicates the amount of water, in inches, necessary for turf growth.

Institutional Use

Institutional water use is water used for city, county, state and federal government facilities, parks, municipal golf courses, schools, hospitals, churches, military facilities, as well as fire hydrant testing and other municipal losses in the water system. Because this water use is often not metered, the process to acquire this data is difficult. Again, the system operator is asked to provide information about city facilities such as the number and size (irrigated acreage) of parks, schools, churches, and municipal golf courses. Water right-duty rates (and/or the ET) are used to calculate the amount of water used to irrigate these areas. Estimates of leakage and water use for testing of water system facilities and are also included in this category.

Industrial Use

Industrial water use is defined as water used in the production of a product. Therefore, such commercial establishments as dairies, mink farms, and greenhouses, as well as stockwatering, are included in this category, provided a community water system serves them. Industrial water use within community water systems is acquired with the same process used to obtain commercial water use data discussed earlier.

Present Methodology for Non-Community Water Systems

DWRe staff attempts to contact each non-community system and/or make a personal visit to these systems. Non-community systems rarely meter their water use, so DWRe staff estimate their annual water use. Questions are asked to determine the type of facility, population served, water source information, irrigation of outside areas, etc. This data, along with information found in water-related publications, is used to determine water use. The maximum and reliable water supplies for these systems are often not available and are not in the scope of this study.

Present Methodology for Self-Supplied Industrial Water Systems

Although self-supplied industries are included in the Non-Community Water Systems category as defined by the Utah Division of Drinking Water, DWRe has separated them into their own category due to their importance. The category is equivalent to the Utah Division of Drinking Water's (DWRi's) Non-Community, Non-Transient category.

Water use is acquired for self-supplied industries by using data from the DWRi's Industrial Water Use Form and/or electronically submitted data. DWRi collects annual water use data from most of the major self-supplied industrial water users in the state. This data is confidential. Therefore, the data presented in this M&I study is only given as county totals. As with other non-community systems, the maximum

and reliable water supplies are often not available and are not in the scope of this study.

Present Methodology for Private Domestic Water Systems

Private domestic systems are residences that are not connected to any public community or non-community water system. They are usually supplied by individual wells. To determine the water use data for this category, the population of those served by private domestic systems is estimated. This population is estimated by subtracting the population served by community water systems from the county population data acquired from the Governor's Office of Planning and Budget (GOPB).

The remainder is assumed to be the population that is served by private domestic systems. The per capita water use rate for this category is assumed to be the same as the per capita water use rate for the public community system residential category for that county. To determine the total water use by private domestic systems, the estimated population is then multiplied by this rate. Again, the maximum and reliable water supplies for private wells are not in the scope of this study.

DEFINITIONS OF WATER TERMS

Water Supply Terms

Water is supplied by a variety of systems for many users. The general term supply is defined as the amount of water available. Municipalities own most of the individual water supply systems. However, in some cases the owner/operator is a private company or a state or federal agency. Thus, a "public" water supply may be either publicly or privately owned. Also, systems may supply treated or untreated water. Following are definitions of some terms used in this study:

Maximum Potable Water Supply - The annual volume of potable (culinary) water which is the lesser of the hydrologic capacity of the water source, the physical capacity of the water system, or the amount allowed by the collective water rights.

Reliable Potable Water Supply - The annual quantity of the maximum water supply that is available to meet peak demands. This is generally calculated as 100% of the maximum supply from surface water sources, 50% of the maximum yield of wells, and between 50% and 100% of the average annual spring flows. When this number is divided by the average per capita usage, the resulting number represents the theoretical maximum population that the water source can serve.

Municipal and Industrial Water Supply - Includes all water (potable and non-potable) supplied for residential, commercial, institutional, light industry, and self-supplied industries. This supply is delivered by public community systems, public non-community (transient and non-transient) systems, self-supplied industrial systems, unregulated Indian water systems and private wells.

Potable Water Supply – Includes water meeting all applicable safe drinking water requirements for residential, commercial, institutional and industrial uses. It is sometimes referred to as culinary, or municipal, water supply.

Public Community Water Supply - Includes potable and non-potable water supplied by either privately or publicly owned community systems which serve at least 15 service connections or 25 individuals year round. Water from public community supplies may be used for both indoor and outdoor uses for residential, commercial, institutional, and industrial purposes.

Public Non-Community Water Supply - Includes potable and non-potable water supplied by either privately or publicly owned systems of two types: transient and non-transient. Transient systems are systems that do not serve 25 of the same non-resident persons per day for more than six months per year. Examples include campgrounds, RV parks, restaurants, convenience stores, etc. Non-transient systems are systems that regularly serve 25 of the same non-resident persons per day for more than six months per year. Examples include churches, schools and industries. This report lists the industrial non-transient systems as self-supplied industries.

Secondary Water Supply – Includes water not meeting safe drinking water requirements. Sometimes referred to as non-potable (non-culinary) water supply. This water is usually delivered by pressurized or open ditch water supply systems for irrigation of privately and publicly owned landscapes, gardens, parks, cemeteries, golf courses and other open areas. These systems, sometimes called "dual" water systems, are installed to provide an alternative to irrigating with culinary water for these outdoor areas. Irrigation companies often provide this water. However, some public community water systems may deliver this water as well. Self-supplied industries may also use secondary water for industrial processes.

Self-Supplied Industrial Supply - Includes potable and non-potable water supplied by individual privately owned industries (usually from their own wells or springs). This category is the equivalent of the Utah Division of Drinking Water's Non-Community, Non-Transient systems category.

Water Use Terms

Water is used in a variety of ways and for many purposes. It is often said that water is "used" when it is diverted, demanded, withdrawn, depleted or consumed. But it is also "used" in place for such things as fish and wildlife habitat, recreation and hydropower production. **Water use in this report is defined as “diverted” water.** However, a table that includes the basin’s municipal and industrial water depletions is provided in Appendix E.

In most of the previous water supply terms the word “use” can be inserted where the word “supply” is written to define the current demand associated with those definitions. Some additional water use terms are as follows:

Commercial Use - Use normally associated with small business operations that may include drinking water, food preparation, personal sanitation, facility cleaning and maintenance and irrigation of facility landscapes. Examples include retail businesses, restaurants and hotels.

Industrial Use - Use associated with the manufacturing or production of products. The volume of water used by industrial businesses can be considerably greater than water used by commercial businesses. Examples include manufacturing plants, oil and gas producers, mining companies, mink farms and dairies.

Institutional Use - Use normally associated with general operation of various public agencies and institutions (i.e. schools, municipal buildings, churches) including drinking water, personal sanitation, facility cleaning and maintenance and irrigation of parks, cemeteries, playgrounds, recreational areas, golf courses, and other facilities. The amount of water used by cities for outside irrigation of public areas typically is not metered.

Municipal and Industrial (M&I) Use - Use includes all residential, commercial, institutional, and industrial uses. It includes total uses (potable and non-potable) supplied by public water systems (community and non-community), self-supplied industries, private domestic systems, and secondary irrigation companies.

Private Domestic Use – Use includes water from private wells or springs for use in individual homes, usually in rural areas not accessible to public community water systems.

Residential Use - Use associated with residential cooking, drinking water, washing clothes, miscellaneous cleaning, personal grooming and sanitation, irrigation of lawns, gardens and landscapes, and washing automobiles, driveways and other outside residential facilities. Examples include single-family homes, apartments, duplexes and condominiums.

Other Water Terms

Consumption - Water evaporated, transpired or irreversibly bound in either a physical, chemical or biological process. Consumed water results in a loss of the original water supplied.

Consumptive Use - Losses of water brought about by human endeavors when used for residential, commercial, institutional, industrial, agricultural, power generation, and recreation. Naturally occurring vegetation and fish and wildlife also consumptively use water.

Depletion - Water consumed and made unavailable for return to a given designated area, river system or basin. It is intended to represent the net loss to a system. The terms consumption and depletion are often used interchangeably but are not the same. For example, water exported from a basin is depletion from the basin system but is not consumed in the basin. The exported water is available for use

(consumption) in another basin or system. Water diverted to irrigate crops in a given system, but not returned for later use, is depletion. Precipitation that falls on irrigated crops is not considered a part of the supply like surface water and groundwater diversions. For this reason, precipitation falling on and consumed by irrigated crops is not considered as being depletion from the system.

Diversion - Water diverted from supply sources such as streams, lakes, reservoirs or groundwater for a variety of purposes including cropland irrigation, as well as residential, commercial, institutional and industrial uses.

Withdrawal - Water withdrawn from supply sources such as lakes, streams, reservoirs or groundwater. This term is normally used in association with groundwater withdrawal. The terms *diversion* and *withdrawal* are often used interchangeably. **Water use as presented in this report deals with diversions.**

WATER RIGHTS IN SOUTHEAST COLORADO RIVER BASIN

Although a detailed analysis of water rights is not part of this report, a water supply and use study would not be complete without at least a discussion on the current water right regulations in the area. The following discussion was obtained from the Division of Water Rights (DWRi). It explains the current general water right regulations in the Southeast Colorado River Basin with regards to M&I uses.

Garfield County

Surface and ground waters are considered to be fully appropriated at this time. New diversions and uses must be accomplished by change applications filed on owned or acquired existing rights. Changes between surface and underground sources are reviewed to indicate hydrologic connection, that underlying rights are not enlarged or that there is no potential for interference with existing water rights. The Tropic, Henrieville and Cannonville area is closed to new domestic filings.

Grand and San Juan Counties

Surface and ground waters are considered to be fully appropriated at this time. New diversions and uses must be accomplished by change applications filed on owned or acquired existing rights. Changes between surface and underground sources are reviewed to indicate hydrologic connection, that underlying rights are not enlarged or that there is no potential for interference with existing water rights. However, groundwater for domestic purposes (1 acre and 10 head of livestock, less than 5.73 acre feet per year) applications will be allowed on an individual basis.

Kane County

Surface and ground waters are considered to be fully appropriated at this time. New diversions and uses must be accomplished by change applications filed on owned or acquired existing rights. Changes between surface and underground sources are reviewed to indicate hydrologic connection, that underlying rights are not enlarged or that there is no potential for interference with existing water rights. However, groundwater and/or surface water for domestic purposes (1/4 acre lawn & garden area and 10 head of livestock) applications will be allowed on an individual basis.

Miscellaneous

In all areas, surface and ground waters are considered to be fully appropriated at this time. New diversions and uses must be accomplished by change applications filed on owned, purchased or acquired existing rights. Changes between surface and underground sources are reviewed to indicate hydrologic connection, that underlying rights are not enlarged or that there is no potential for interference with existing water rights. Most, if not all, new applications for domestic purposes (1 acre and 10 head of livestock) will be subject to the above requirements.

GARFIELD COUNTY M&I WATER SUPPLIES AND USES

The Southeast Colorado River Basin portion of Garfield County includes the incorporated communities of Tropic, Cannonville and Henrieville. Within this area are 3 public community systems. Locations of public community systems are shown in figure 3.

Table 1 shows that the maximum annual water supply for public community systems in this portion of Garfield County is 1,264.8 acre-feet; 548.7 acre-feet from springs, and 716.1 acre-feet from wells.

TABLE 1
GARFIELD COUNTY
Maximum Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Springs (Ac-Ft/Yr)	Wells (Ac-Ft/Yr)	Surface (Ac-Ft/Yr)	Total (Ac-Ft/Yr)
Cannonville Town	161.3	716.1	0.0	877.4
Henrieville	64.7	0.0	0.0	64.7
Tropic	322.6	0.0	0.0	322.6
GARFIELD COUNTY TOTALS	548.7	716.1	0.0	1,264.8

Note: All values represent maximum system source capacities limited by water rights, hydrologic constraints, and/or system constraints.

The reliable potable water supply for public community systems in the Garfield County portion of the Southeast Colorado River Basin is 632.4 acre-feet or, in this case, 50% of the maximum supply. The breakdown of this supply is presented in Table 2 on the following page.

TABLE 2
GARFIELD COUNTY
Reliable Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	SPRINGS (Ac-Ft/Yr)	WELLS (Ac-Ft/Yr)	SURFACE (Ac-Ft/Yr)	TOTAL (Ac-Ft/Yr)
Cannonville Town	80.7	358.1	0.0	438.7
Henrieville	32.4	0.0	0.0	32.4
Tropic	161.3	0.0	0.0	161.3
GARFIELD COUNTY TOTALS	274.3	358.1	0.0	632.4

* Wells are limited to 50% of their "maximum" capacity for reliable supply when well/pump capacity is the limiting factor. Springs are limited to 50% of their maximum supply. Surface water supplies are equal to their respective "maximum" capacities.

Table 3 shows the breakdown of potable water use for each public community system. This table indicates that for Garfield County, the current annual use of 210.6 acre-feet of water (within the public community systems) is about 33% of the reliable supply of 632.4 acre-feet of water.

TABLE 3
GARFIELD COUNTY
Water Use for Public Community Systems

WATER SUPPLIER	POTABLE USAGE						POTABLE PER CAPITA USAGE		
	Residential Indoor Use (Ac-Ft/Yr)	Residential Outdoor Use (Ac-Ft/Yr)	Commercial Indoor and Outdoor Use (Ac-Ft/Yr)	Institutional Indoor and Outdoor Use (Ac-Ft/Yr)	Industrial/ Stockwater Indoor and Outdoor Use (Ac-Ft/Yr)	Total Potable M & I Use (Ac-Ft/Yr)	Population (2.14 PPHH)	Average Per Capita Water Use (Ac-Ft/Yr)	Average Per Capita Water Use (GPCPD)
Cannonville Town	15.6	13.6	4.3	19.2	4.8	57.3	165	0.347	309.8
Henrieville	19.6	0.0	0.0	3.0	0.0	22.6	247	0.092	81.8
Tropic	45.1	27.3	48.5	9.2	0.6	130.7	508	0.257	229.7
GARFIELD COUNTY TOTALS	80.4	40.9	52.8	31.4	5.2	210.6	920	0.229	204.4
A	B	C	D	E	F	G	H	I	J

A, B, C, D, E, F, H, and K
G=B+C+D+E+F
H
I=G/H
J=I*892.682

These values are all input data.
This value represents only Potable M&I Water Use.
This value represents 2000 census data adjusted to reflect 2003 population.
Average per capita potable water use.
Converts from Ac-Ft/Yr to GPD

Secondary water is another important aspect of total M&I use. Table 4 presents the amount of secondary water used for various categories within the boundaries of the

Garfield County public community systems. Various irrigation companies deliver secondary water to customers. Total secondary water use is 357.8 acre-feet.

TABLE 4
GARFIELD COUNTY
Secondary (Non-Potable) Water Use Within Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Secondary Use (Ac-Ft/Yr)
Cannonville Town					
Cannonville Irrigation Co.	27.6	0	0	0	27.6
Henrieville					
Henrieville Irrigation System	29.8	0.0	11.1	0.0	40.9
Tropic					
Tropic Irrigation Co.	252.1	18.8	18.4	0.0	289.3
GARFIELD COUNTY TOTALS	309.5	18.8	29.5	0.0	357.8

Note: Separate irrigation companies provide secondary water to the water supplier unless indicated by an '**'.

Table 5 presents various per capita rates for the public community system in the Garfield County portion of the Southeast Colorado River Basin.

TABLE 5
GARFIELD COUNTY
Average Per Capita Water Use
For Public Community Systems

CATEGORY	Average Per Capita Use (Ac-Ft/Yr)	Average Per Capita Use (GPCD)
Residential Potable Use	0.132	118
Residential Potable Plus Secondary Use	0.468	418
Total Potable Use	0.229	204
Total Potable Plus Secondary Use	0.618	552

Note: Total Potable categories include residential, commercial, institutional and industrial uses.

Table 6 indicates water use for public non-community and private domestic systems in this portion of the Southeast Colorado River Basin. There are no self-supplied industries and only a small number of private domestic wells. All of these uses amount to 5 acre-feet of potable water.

TABLE 6
GARFIELD COUNTY
Water Use for Public Non-Community Systems,
Self-Supplied Industries and Domestic Systems
(Acre-Feet/Year)

	POTABLE USAGE					Total Secondary Water Use (Ac-Ft/Yr)
	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Potable Use (Ac-Ft/Yr)	
Non-Community System						
Forest Service Systems						
	0.0	0.0	0.0	0.0	0.0	0.0
Total Non-Community Use	0.0	0.0	0.0	0.0	0.0	0.0
SELF SUPPLIED INDUSTRIES	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATE DOMESTIC SYSTEMS	5.0	0.0	0.0	0.0	5.0	0.0
GARFIELD COUNTY TOTALS	5.0	0.0	0.0	0.0	5.0	0.0

Collectively, the total potable M&I water use from all systems in this portion of the Southeast Colorado River Basin is 215.6 acre-feet, while secondary use is 357.8 acre-feet; giving a total M&I water use of 573.4 acre-feet. The data for all systems in Garfield County presented in the previous tables is compiled in Appendix B.

GRAND COUNTY M&I WATER SUPPLIES AND USES

The Southeast Colorado portion of Grand County includes the incorporated communities of Moab and Castle Valley. Within this area are 3 public community systems, 10 public non-community systems and 1 self-supplied industry. Locations of public community systems are shown back in figure 3.

Table 7 shows that the maximum annual water supply for public community systems in this portion of Grand County is 11,384.3 acre-feet; 1,353.1 acre-feet from springs and 10,031.2 acre-feet from wells.

**TABLE 7
GRAND COUNTY
Maximum Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)**

WATER SUPPLIER	Springs (Ac-Ft/Yr)	Wells (Ac-Ft/Yr)	Surface (Ac-Ft/Yr)	Total (Ac-Ft/Yr)
Day Star Adventist Academy	0.0	194.0	0.0	194.0
Grand County WCD	NA	NA	NA	NA
Spanish Valley Water & Sewer Improvement District	0.0	4,128.0	0.0	4,128.0
Moab City Water	1,353.1	5,709.2	0.0	7,062.3
GRAND COUNTY TOTALS	1,353.1	10,031.2	0.0	11,384.3

Note: All values represent maximum system source capacities limited by water rights, hydrologic constraints, and/or system constraints.

The reliable potable water supply for public community systems in the Grand County portion of the Southeast Colorado River Basin is 5,692.1 acre-feet, 50% of the maximum supply. The breakdown of this supply is presented in Table 8.

TABLE 8
GRAND COUNTY
Reliable Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	SPRINGS (Ac-Ft/Yr)	WELLS (Ac-Ft/Yr)	SURFACE (Ac-Ft/Yr)	TOTAL (Ac-Ft/Yr)
Day Star Adventist Academy	0.0	97.0	0.0	97.0
Grand County WCD	NA	NA	NA	NA
Spanish Valley Water & Sewer Improvement District	0.0	2,064.0	0.0	2,064.0
Moab City Water	676.5	2,854.6	0.0	3,531.1
GRAND COUNTY TOTALS	676.5	5,015.6	0.0	5,692.1

* Wells are limited to 50% of their "maximum" capacity for reliable supply when well/pump capacity is the limiting factor. Springs are limited to 50% of their maximum supply. Surface water supplies are equal to their respective "maximum" capacities.

Table 9 shows the breakdown of potable water use for each public community system. This table indicates that for Grand County, the current annual use of 2,741.3 acre-feet of water (within the public community systems) is about 48% of the reliable supply of 5,692.1 acre-feet of water.

TABLE 9
GRAND COUNTY
Water Use for Public Community Systems

WATER SUPPLIER	POTABLE USAGE						POTABLE PER CAPITA USAGE		
	Residential Indoor Use (Ac-Ft/Yr)	Residential Outdoor Use (Ac-Ft/Yr)	Commercial Indoor and Outdoor Use (Ac-Ft/Yr)	Institutional Indoor and Outdoor Use (Ac-Ft/Yr)	Industrial/ Stockwater Indoor and Outdoor Use (Ac-Ft/Yr)	Total Potable M & I Use (Ac-Ft/Yr)	Population (2,44 PPHH)	Average Per Capita Water Use (Ac-Ft/Yr)	Average Per Capita Water Use (GPCPD)
Day Star Adventist Academy	2.4	0.0	0.3	3.0	1.0	6.7	30	0.223	199.2
Grand County WCD									
Spanish Valley Water & Sewer Imp. District	265.1	195.2	112.9	196.0	0.0	769.2	2,984	0.258	230.1
Moab City Water	446.8	618.9	239.7	660.0	0.0	1,965.5	5,030	0.391	348.8
GRAND COUNTY TOTALS	714.4	814.1	352.9	859.0	1.0	2,741.3	8,044	0.341	304.2
A	B	C	D	E	F	G	H	I	J

A, B, C, D, E, F, H, and K
G=B+C+D+E+F
H
I=G/H
J=I*892.682

These values are all input data.
This value represents only Potable M&I Water Use.
This value represents 2000 census data adjusted to reflect 2003 population.
Average per capita potable water use.
Converts from Ac-Ft/Yr to GPD

Secondary water is another important aspect of total M&I use. Table 10 presents the amount of secondary water used for various categories within the boundaries of the Grand County public community systems. Various irrigation companies deliver secondary water to customers. Total secondary water use is 510.8 acre-feet.

TABLE 10
GRAND COUNTY
Secondary (Non-Potable) Water Use Within Public Community Systems

WATER SUPPLIER	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Secondary Use (Ac-Ft/Yr)
Day Star Adventist Academy*	9	0	1.8	0	10.8
Grand County WCD*	22.0	0.0	478.0	0.0	500.0
Moab City Water	0.0	0.0	0.0	0.0	0.0
GRAND COUNTY TOTALS	31.0	0.0	479.8	0.0	510.8

Note: Separate irrigation companies provide secondary water to the water supplier unless indicated by an '*'.

Table 11 presents various per capita rates for the public community system in the Grand County portion of the Southeast Colorado River Basin.

TABLE 11
GRAND COUNTY
Average Per Capita Use
For Public Community Systems

CATEGORY	Average Per Capita Use (Ac-Ft/Yr)	Average Per Capita Use (GPCD)
Residential Potable Use	0.190	170
Residential Potable Plus Secondary Use	0.194	173
Total Potable Use	0.341	304
Total Potable Plus Secondary Use	0.404	361

Note: Total Potable categories include residential, commercial, institutional and industrial uses.

Table 12 indicates water use for public non-community and private domestic systems in this portion of the Southeast Colorado River Basin. There is one self-supplied industry and roughly 100 private domestic wells. All of these uses amount to 229.4 acre-feet of potable water and 704.1 acre-feet of non-potable water.

TABLE 12
GRAND COUNTY
Water Use for Public Non-Community Systems,
Self-Supplied Industries and Domestic Systems
(Acre-Feet/Year)

Non-Community System	POTABLE USAGE					Total Secondary Water Use (Ac-Ft/Yr)
	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Potable Use (Ac-Ft/Yr)	
Forest Service Systems						
Warner Campground & GS	0.0	0.0	0.1	0.0	0.1	0.0
National Park Systems						
Arches National Park HQ	1.2	0.0	7.1	0.0	8.3	0.0
Arches National Park- Devils Garden	0.1	0.0	1.3	0.0	1.4	0.0
State Park Systems						
Dead Horse Point State Park	0.0	0.0	0.4	0.0	0.4	0.0
Archview Partners LLC (Campground)	0.2	2.7	0.0	0.0	2.9	0.0
Bucks Grill House	0.9	0.7	0.0	0.0	1.6	0.0
Canyonlands Field	0.4	1.3	0.0	0.0	1.8	0.0
Matrimony Spring	0.3	0.0	0.0	0.0	0.3	0.0
Moab KOA Campground	0.0	0.0	74.6	0.0	74.6	0.0
Slickrock Campground	1.2	9.3	0.0	0.0	10.5	0.0
Sorrel River Ranch Water	3.4	7.2	0.0	0.0	10.6	29.2
Total Non-Community Use	7.7	21.3	83.4	0.0	112.4	29.2
SELF SUPPLIED INDUSTRIES*	0.0	0.0	0.0	0.0	0.0	674.9
PRIVATE DOMESTIC SYSTEMS	117.0	0.0	0.0	0.0	117.0	0.0
GRAND COUNTY TOTALS	124.7	21.3	83.4	0.0	229.4	704.1

*SELF SUPPLIED INDUSTRIES
Moab Salt Incorporated

Collectively, the total potable M&I water use from all systems in this portion of the Southeast Colorado River Basin is 2,970.7 acre-feet, secondary use is 1,214.9 acre-feet; giving a total M&I water use of 4,185.6 acre-feet. The data for all systems in Grand County presented in the previous tables is compiled in Appendix B.

KANE COUNTY M&I WATER SUPPLIES AND USES

The Kane County portion of the Southeast Colorado River Basin includes the incorporated community of Big Water. Within this area, there are 2 public community systems and 3 public non-community systems. Locations of the public community systems are shown in Figure 3.

As shown in Table 11, the maximum annual water supply for public community systems in Kane County is 1,085.8 acre-feet; all from wells.

TABLE 13
KANE COUNTY
Maximum Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Springs (Ac-Ft/Yr)	Wells (Ac-Ft/Yr)	Surface (Ac-Ft/Yr)	Total (Ac-Ft/Yr)
Church Wells Special Service District	0.0	361.8	0.0	361.8
Glen Canyon Special Service District #1 (Big Water)	0.0	724.0	0.0	724.0
KANE COUNTY TOTALS	0.0	1,085.8	0.0	1,085.8

Note: All values represent maximum system source capacities limited by water rights, hydrologic constraints, and/or system constraints.

The reliable potable water supply for public community systems in the Kane County portion of the Southeast Colorado River Basin is 542.9 acre-feet, 50% of the maximum supply. The breakdown of this supply is presented in Table 14.

TABLE 14
KANE COUNTY
Reliable Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	SPRINGS (Ac-Ft/Yr)	WELLS (Ac-Ft/Yr)	SURFACE (Ac-Ft/Yr)	TOTAL (Ac-Ft/Yr)
Church Wells Special Service District	0.0	180.9	0.0	180.9
Glen Canyon Special Service District #1 (Big Water)	0.0	362.0	0.0	362.0
KANE COUNTY TOTALS	0.0	542.9	0.0	542.9

* Wells are limited to 50% of their "maximum" capacity for reliable supply when well/pump capacity is the limiting factor. Springs are limited to 50% (Fruitland 75%) of their maximum supply. Surface water supplies are equal to their respective "maximum" capacities.

Table 15 presents the breakdown of the potable water use for each public community system. These tables indicate that the current annual potable use of 188.1 acre-feet of water is about 35% of the reliable potable water supply of water in Kane County.

TABLE 15
KANE COUNTY
Water Use for Public Community Systems

WATER SUPPLIER	POTABLE USAGE						POTABLE PER CAPITA USAGE		
	Residential Indoor Use (Ac-Ft/Yr)	Residential Outdoor Use (Ac-Ft/Yr)	Commercial Indoor and Outdoor Use (Ac-Ft/Yr)	Institutional Indoor and Outdoor Use (Ac-Ft/Yr)	Industrial/ Stockwater Indoor and Outdoor Use (Ac-Ft/Yr)	Total Potable M & I Use (Ac-Ft/Yr)	Population (2,67 PPHH)	Average Per Capita Water Use (Ac-Ft/Yr)	Average Per Capita Water Use (GPCPD)
Church Wells Special Service District	9.7	21.9	0.0	1.6	2.1	35.4	114	0.311	277.2
Glen Canyon SSD #1 (Big Water)	37.5	65.7	7.1	12.6	29.9	152.7	440	0.347	309.9
KANE COUNTY TOTALS	47.2	87.6	7.1	14.2	32.0	188.1	554	0.340	303.2
A	B	C	D	E	F	G	H	I	J

A, B, C, D, E, F, H, and K
G=B+C+D+E+F
H
I=G/H
J=I*892.682

These values are all input data.
This value represents only Potable M&I Water Use.
This value represents 2000 census data adjusted to reflect 2003 population.
Average per capita potable water use.
Converts from Ac-Ft/Yr to GPD

Secondary water is another important aspect of total M&I use. Table 16 presents the annual amount of secondary water used for various categories within the boundaries of the public community systems. In Kane County, within the public community systems, there are no secondary deliveries recorded.

TABLE 16
KANE COUNTY
Secondary (Non-Potable) Water Use Within Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Secondary Use (Ac-Ft/Yr)
Church Wells Special Service District	0.0	0.0	0.0	0.0	0.0
Glen Canyon SSD #1 (Big Water)	0.0	0.0	0.0	0.0	0.0
KANE COUNTY TOTALS	0.0	0.0	0.0	0.0	0.0

Note: Separate irrigation companies provide secondary water to the water supplier unless indicated by an '*'.

Various per capita rates for public community systems in the Kane County portion of the Southeast Colorado River Basin are given in Table 17.

TABLE 17
KANE COUNTY
Average Per Capita Water Use
For Public Community Systems

CATEGORY	Average Per Capita Use (Ac-Ft/Yr)	Average Per Capita Use (GPCD)
Residential Potable Use	0.243	217
Residential Potable Plus Secondary Use	0.243	217
Total Potable Use	0.340	303
Total Potable Plus Secondary Use	0.340	303

Note: Total Potable categories include residential, commercial, institutional and industrial uses.

Table 18 indicates annual water use for public non-community systems, self-supplied industries, and private domestic systems in this portion of the Southeast Colorado River Basin. Kodachrome Basin State Park and Dangling Rope Marina are among the listed non-community systems. There are no self-supplied industries listed. There are numerous residences using their own wells. All of these uses amount to 106 acre-feet of potable water and no secondary water.

TABLE 18
KANE COUNTY
Water Use for Public Non-Community Systems,
Self-Supplied Industries and Domestic Systems
(Acre-Feet/Year)

Non-Community System	POTABLE USAGE					Total Secondary Water Use (Ac-Ft/Yr)
	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Potable Use (Ac-Ft/Yr)	
National Park Service Systems						
Glen Canyon NRA (Dangling Rope Marina)	0.0	0.0	0.1	0.0	0.1	0.0
Forest Service Systems						
Paria Contact Station	0.2	0.0	0.7	0.0	0.9	0.0
State Park Systems						
Kodachrome Basin State Park	1.0	0.0	3.0	0.0	4.0	0.0
Total Non-Community Use	1.2	0.0	3.7	0.0	4.9	0.0
SELF SUPPLIED INDUSTRIES	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATE DOMESTIC SYSTEMS	101.0	0.0	0.0	0.0	101.0	0.0
KANE COUNTY TOTALS	102.2	0.0	3.7	0.0	105.9	0.0

Collectively, the total potable M&I water diversion of all systems in this portion of the Southeast Colorado River Basin is 294.0 acre-feet, while there are no secondary diversions; giving a total M&I water diversion of 294.0 acre-feet. The data for all systems in Kane County presented in the previous tables is compiled in Appendix B.

SAN JUAN COUNTY M&I WATER SUPPLIES AND USES

The San Juan County portion of the Southeast Colorado River Basin includes the incorporated communities of Monticello, Blanding and Bluff. Within this area are 6 public community systems, 8 unregulated Indian systems 12 public non-community systems and 7 self-supplied industries. Locations of the public community systems are shown in figure 3. The National Park Service delivers water to Halls Crossing Marina in Glen Canyon National Recreation Area. The Navajo Tribal Utility Authority delivers water to the Navajo Nation through 7 separate unregulated water systems. Another unregulated Indian system is operated by the Ute Mountain Indian Tribe.

As shown in Table 19, the maximum annual water supply for public community systems in San Juan County is 9,217 acre-feet.

TABLE 19
SAN JUAN COUNTY
Maximum Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Springs (Ac-Ft/Yr)	Wells (Ac-Ft/Yr)	Surface (Ac-Ft/Yr)	Total (Ac-Ft/Yr)
Blanding City Municipal Water System	32.3	2,069.1	1,784.4	3,885.7
Bluff Water & Sewer Users Association	0.0	300.8	0.0	300.8
Eastland Special Service District	0.0	47.8	0.0	47.8
Monticello Municipal Water System	2,092.1	531.4	0.0	2,623.5
Monument Valley High School	0.0	168.0	0.0	168.0
Navajo Tribal Utility Authority				
Aneth Community	0.0	144.0	0.0	144.0
Holly Village Community	NA	NA	NA	0.0
Mexican Hat / Halchita Community	0.0	0.0	226.0	226.0
Montezuma Creek Community	0.0	1,612.0	0.0	1,612.0
Oljato Community	NA	NA	NA	
Red Mesa Community	NA	NA	NA	
Todohaidekani Community	NA	NA	NA	
San Juan County SSD #1 (Mexican Hat)	0.0	131.8	0.0	131.8
Spanish Valley Water & Sewer Improvement District	NA	NA	NA	NA
White Mesa (Ute Mountain Ute Tribe)	0.0	77.4	0.0	77.4
SAN JUAN COUNTY TOTALS	2,124.4	5,082.3	2,010.4	9,217.0

Note: All values represent maximum system source capacities limited by water rights, hydrologic constraints, and/or system constraints.

The reliable potable water supply for public community systems in the San Juan County portion of the Southeast Colorado River Basin is 5,613.7 acre-feet. The reliable supply is about 61% of the maximum supply. The breakdown of this supply is presented in Table14.

TABLE 20
SAN JUAN COUNTY
Reliable Potable Water Supplies for Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	SPRINGS (Ac-Ft/Yr)	WELLS (Ac-Ft/Yr)	SURFACE (Ac-Ft/Yr)	TOTAL (Ac-Ft/Yr)
Blanding City Municipal Water System	16.2	1,034.5	1,784.4	2,835.0
Bluff Water & Sewer Users Association	0.0	150.4	0.0	150.4
Eastland Special Service District	0.0	23.9	0.0	23.9
Monticello Municipal Water System	1,046.0	265.7	0.0	1,311.7
Monument Valley High School	0.0	84.0	0.0	84.0
Navajo Tribal Utility Authority				
Aneth Community	0.0	72.0	0.0	72.0
Holly Village Community	NA	NA	NA	NA
Mexican Hat / Halchita Community	0.0	0.0	226.0	226.0
Montezuma Creek Community	0.0	806.0	0.0	806.0
Oljato Community	NA	NA	NA	NA
Red Mesa Community	NA	NA	NA	NA
Todohaidekani Community	NA	NA	NA	NA
San Juan County SSD #1 (Mexican Hat)	0.0	65.9	0.0	65.9
Spanish Valley Water & Sewer Imp.	NA	NA	NA	NA
White Mesa (Ute Mountain Ute Tribe)	0.0	38.7	0.0	38.7
SAN JUAN COUNTY TOTALS	1,062.2	2,541.2	2,010.4	5,613.7

* Wells are limited to 50% of their "maximum" capacity for reliable supply when well/pump capacity is the limiting factor. Springs are limited to 50% of their maximum supply. Surface water supplies are equal to their respective "maximum" capacities.

Table 15 presents the breakdown of the potable water use for each public community system. These tables indicate that the current annual potable use of 1,254.2 acre-feet of water is about 23% of the reliable potable water supply of water in San Juan County.

TABLE 21
SAN JUAN COUNTY
Water Use for Public Community Systems

WATER SUPPLIER	POTABLE USAGE						POTABLE PER CAPITA USAGE		
	Residential Indoor Use (Ac-Ft/Yr)	Residential Outdoor Use (Ac-Ft/Yr)	Commercial Indoor and Outdoor Use (Ac-Ft/Yr)	Institutional Indoor and Outdoor Use (Ac-Ft/Yr)	Industrial/ Stockwater Indoor and Outdoor Use (Ac-Ft/Yr)	Total Potable M & I Use (Ac-Ft/Yr)	Population (3.2 PPHH)	Average Per Capita Water Use (Ac-Ft/Yr)	Average Per Capita Water Use (GPCPD)
Blanding City Municipal Water System	252.1	155.9	86.0	15.0	0.0	509.0	3,191	0.160	142.4
Bluff Water & Sewer Users Association	24.3	5.9	33.6	1.8	0.0	65.7	308	0.213	190.4
Eastland Special Service District	8.1	1.0	0.6	1.0	0.0	10.8	103	0.105	93.8
Monticello Municipal Water System	159.3	169.5	46.4	10.0	0.0	385.3	2,017	0.191	170.5
Monument Valley High School	6.7	6.0	0.0	32.2	0.0	44.9	60	0.748	668.1
Navajo Tribal Utility Authority									
Aneth Community	26.9	0.0	5.1	0.2	23.7	55.9	411	0.136	121.4
Holly Village Community	5.5	0.0	0.0	0.0	0.0	5.5	103	0.053	47.7
Mexican Hat / Halchita Community	12.6	0.0	4.6	12.0	0.1	29.3	308	0.095	84.9
Montezuma Creek Community	16.6	0.0	3.1	26.2	4.2	50.1	257	0.195	174.0
Ojato Community	21.1	0.0	1.7	0.1	0.0	22.9	308	0.074	66.4
Red Mesa Community	11.1	0.0	0.0	1.0	0.0	12.1	246	0.049	43.9
Todohaidekani Community	8.4	0.0	0.1	0.0	0.0	8.5	123	0.069	61.7
San Juan County SSD #1 (Mexican Hat)	2.8	3.0	12.7	3.0	0.0	21.5	35	0.614	548.0
Spanish Valley Water & Sewer Imp. Dist.	3.3	2.0	0.0	0.0	0.0	5.3	37	0.142	126.9
White Mesa (Ute Mountain Ute Tribe)	27.5	0.0	0.0	0.0	0.0	27.5	308	0.089	79.7
SAN JUAN COUNTY TOTALS	586.3	343.4	194.0	102.6	28.0	1,254.2	7,815	0.160	143.3
A	B	C	D	E	F	G	H	I	J

A, B, C, D, E, F, H, and K
G=B+C+D+E+F
H
I=G/H
J=I*892.682

These values are all input data.
This value represents only Potable M&I Water Use.
This value represents 2000 census data adjusted to reflect 2003 population.
Average per capita potable water use.
Converts from Ac-Ft/Yr to GPD

Secondary water is another important aspect of total M&I use. Table 22 presents the annual amount of secondary water used for various categories within the boundaries of the public community systems. Total secondary water use in the San Juan County portion of the basin is 608.8 acre-feet.

TABLE 22
SAN JUAN COUNTY
Secondary (Non-Potable) Water Use Within Public Community Systems
(Acre-Feet/Year)

WATER SUPPLIER	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Secondary Use (Ac-Ft/Yr)
Blanding City Municipal Water System*	0.0	0.0	92.8	0.0	92.8
Bluff Water & Sewer Users Association	0.0	0.0	0.0	0.0	0.0
Eastland Special Service District	0.0	0.0	0.0	0.0	0.0
Monticello Municipal Water System*	396.0	0.0	120.0	0.0	516.0
Monument Valley High School	0.0	0.0	0.0	0.0	0.0
Navajo Tribal Utility Authority					
Aneth Community	0.0	0.0	0.0	0.0	0.0
Holly Village Community	0.0	0.0	0.0	0.0	0.0
Mexican Hat / Halchita Community	0.0	0.0	0.0	0.0	0.0
Montezuma Creek Community	0.0	0.0	0.0	0.0	0.0
Ojato Community	0.0	0.0	0.0	0.0	0.0
Red Mesa Community	0.0	0.0	0.0	0.0	0.0
Todaidekani Community	0.0	0.0	0.0	0.0	0.0
San Juan County SSD #1 (Mexican Hat)	0.0	0.0	0.0	0.0	0.0
Spanish Valley Water & Sewer Imp. Dist.	0.0	0.0	0.0	0.0	0.0
White Mesa (Ute Mountain Ute Tribe)	0.0	0.0	0.0	0.0	0.0
SAN JUAN COUNTY TOTALS	396.0	0.0	212.8	0.0	608.8

Note: Separate irrigation companies provide secondary water to the water supplier unless indicated by an '*'.

Various per capita rates for public community systems in the San Juan County portion of the Southeast Colorado River Basin are given in Table 23.

TABLE 23
SAN JUAN COUNTY
Average Per Capita Water Use
For Public Community Systems

CATEGORY	Average Per Capita Use (Ac-Ft/Yr)	Average Per Capita Use (GPCD)
Residential Potable Use	0.119	106
Residential Potable Plus Secondary Use	0.170	151
Total Potable Use	0.160	143
Total Potable Plus Secondary Use	0.238	213

Note: Total Potable categories include residential, commercial, institutional and industrial uses.

Table 24 indicates annual water use for public non-community systems, self-supplied industries, and private domestic systems in this portion of the Southeast Colorado River Basin. Canyonlands National Park, Hovenweep National Monument and the Monument Valley Hospital are among the listed non-community systems. Many people living on the Navajo Indian Reservation do not have running water in their homes. Most of these people drive to Hovenweep National Monument or to Monument Valley Hospital to fill containers with water for residential use. There are numerous residences using their own wells. Self supplied industries are listed below the Table. All of these uses amount to 1,294.8 acre-feet of potable water and no secondary water.

TABLE 24
SAN JUAN COUNTY
Water Use for Public Non-Community Systems,
Self-Supplied Industries and Domestic Systems
(Acre-Feet/Year)

Non-Community System	POTABLE USAGE					Total Secondary Water Use (Ac-Ft/Yr)
	Residential Use (Ac-Ft/Yr)	Commercial Use (Ac-Ft/Yr)	Institutional Use (Ac-Ft/Yr)	Industrial/ Stockwater Use (Ac-Ft/Yr)	Total Potable Use (Ac-Ft/Yr)	
Forest Service Systems						
Dalton Springs Campground	0.0	0.0	0.1	0.0	0.1	0.0
Devils Canyon Campground	0.0	0.0	0.1	0.0	0.1	0.0
Nizhoni Campground	0.0	0.0	0.2	0.0	0.2	0.0
National Park Service Systems						
Canyonlands National Park - Island in the Sky	0.3	0.0	0.6	0.0	0.9	0.0
Canyonlands National Park - Needles District	1.0	0.0	3.2	0.0	4.2	0.0
Hovenweep National Monument	0.4	0.0	1.0	0.0	1.4	0.0
BLM Systems						
Hatch Point Campground	0.0	0.0	0.1	0.0	0.1	0.0
Sand Island	0.0	0.0	0.1	0.0	0.1	0.0
Wind Whistle Campground	0.0	0.0	0.1	0.0	0.1	0.0
Kane Springs Highway Rest Stop	0.0	0.0	2.5	0.0	2.5	0.0
Montezuma Trailer Park	0.0	1.6	0.0	0.0	1.6	0.0
Monument Valley Hospital / Trading Post & Lodge*	55.0	82.5	17.0	0.0	154.5	0.0
Pack Creek Ranch	0.3	3.4	0.0		3.7	0.0
Total Non-Community Use	57.0	87.5	25.0	0.0	169.5	0.0
SELF SUPPLIED INDUSTRIES**	10.1	0.0	0.0	515.2	525.3	0.0
PRIVATE DOMESTIC SYSTEMS	600.0	0.0	0.0	0.0	600.0	0.0
SAN JUAN COUNTY TOTALS	667.1	87.5	25.0	515.2	1,294.8	0.0

* Source in Arizona

** Self Supplied Industries: Wexpro Company - Bug Field, Summo USA Corporation, Rio Algom Mining Corporation, Elkhorn Operating Company, UNOCAL, Mobile Exploration and Producing North America Incorporated and Cochrane Resources.

Collectively, the total potable M&I water diversion of all systems in this portion of the Southeast Colorado River Basin is 2,549.0 acre-feet, while secondary diversions are 608.8 acre-feet; giving a total M&I water diversion of 3,157.8 acre-feet. The data for all systems in San Juan County presented in the previous tables is compiled in Appendix B.

APPENDIX A

TYPICAL WATER USE DATA FORM

Information jointly requested by:
 Utah Division of Water Resources, 538-7264
 Utah Division of Drinking Water, 536-4200; and
 Utah Division of Water Rights, 538-7392.

**UTAH WATER USE DATA FORM
DATA FOR 2005**

Return completed form to:
 Utah Division of Water Rights
 PO Box 146300
 Salt Lake City, UT 84114-6300

Population Served: 1950 DEQH: 19004
 County: San Juan
 E-Mail Address: _____

Phone Number: (435) 587-2271
 Phone Number: 587-2271 **FEB 28 2006**

Number of Tanks: 2
 in gallons.

RECEIVED
WATER RIGHTS

System Name: Monticello Municipal Water System
 Address: P.O. Box 457 -17 North 100 East
 Monticello, UT 84535

Contact Person: Nathan Langston
 Form filled out by: Nathan Langston

I. STORAGE INVENTORY: Total treated storage capacity: 1,250,000

II. SOURCE INVENTORY:

1. Source Name: Blue Mt. Springs
 Method of Measurement: ☒ Master Meter, [] Estimate, [] Other
 Units of Measurement: million gallons
 Are there any spills/overflow? ☒ Yes, [] No If yes, estimate annual quantity 1 MG. Where is source measured? ☒ Before overflow, [] After overflow
 When do spills/overflow occur? Spring runoff Are spills/overflow included in the quantities reported? ☒ Yes [] No

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
16.40	14.24	44.20	46.26	68.67	47.11	53.65	39.97	26.58	21.36	15.53	14.77	408.75

2. Source Name: Cemetery Well No. 1
 Method of Measurement: ☒ Master Meter, [] Estimate, [] Other
 Units of Measurement: MG
 Date of Last Pump Test: April 04 Yield of Well _____ Rated Pump Capacity: 60 gpm, [] cfs

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
—	—	—	—	—	—	—	—	—	—	—	—	—

3. Source Name: Circle Park Well
 Method of Measurement: ☒ Master Meter, [] Estimate, [] Other
 Units of Measurement: MG
 Date of Last Pump Test: April 04 Yield of Well _____ Rated Pump Capacity: 60 gpm, [] cfs

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
—	—	—	—	—	—	—	—	—	—	—	—	—

entered by KES

III. WATER USE BREAKDOWN: (Please use sum of the readings from individual meters, not master meter readings at source. If quantities are not known, please estimate. See instructions for definition of uses shown in bold).

Units of Measurement: gallons

Residential:	Annual quantity of water delivered for residential purposes	<u>107,146,967</u>	Total number of residential connections	<u>658</u>
	Meter readings at individual connections [] ; or Estimated []			
	Number of connections serving multiple units (apartments) from a single connection	<u>12</u>	Units per connection (avg)	<u>2</u>
Commercial:	Annual quantity of water delivered for commercial purposes	<u>15,126,630</u>	Total number of commercial connections	<u>96</u>
	Meter readings at individual connections [] ; or Estimated []			
Industrial:	Annual quantity of water delivered for industrial purposes		Total number of industrial connections	<u>1</u>
	Meter readings at individual connections [] ; or Estimated []			
Institutional:	Annual quantity of water delivered for institutional purposes	<u>3,253,039</u>	Total number of institutional connections	<u>20</u>
	Meter readings at individual connections [] ; or Estimated []			
Stockwatering:	Annual quantity of water delivered for stockwatering purposes		Total number of stockwatering connections	
	Meter readings at individual connections [] ; or Estimated []			
Wholesale:	Annual quantity of water delivered for wholesale purposes		Please attach a listing of those supplied.	
	Meter readings at individual connections [] ; or Estimated []			
Other Uses:	Annual quantity of water delivered for other purposes		Total number of other connections	
	Meter readings at individual connections [] ; or Estimated []			
	Describe other uses			
Unmetered:	Annual estimate of water delivered by unmetered connections		Total number of unmetered connections	<u>20</u>
	Unmetered connections used for			
Total annual quantity of water delivered for all purposes		<u>126,055,250</u>	Total number of all connections	<u>775</u>
		<u>125,526,631</u>	Of this total, how many connections are active?	

IV. IRRIGATION SYSTEM (Lawn and garden irrigation, whether controlled by the drinking water supplier or not)

Average Residential Lot Size (Acres) _____ Average Amount of Lot Irrigated (%) _____

Is any of your area served by a separate ditch or pipe fed irrigation water system? [] Yes, [X] No If yes, please provide the following information:

What percent of your customers are served by a separate irrigation system? 70 %

Of these customers, what percent are served by ditch? 0 %

What percent are served by pressurized-pipe? 100 %

Do you operate and maintain the separate lawn and garden irrigation water system? [] Yes, [] No

If the separate irrigation system is operated by other entities, please give name of companies, contact person & phone number:

APPENDIX B
2005 Southeast Colorado River Basin
M&I Depletions

WATER SUPPLIER	Potable Residential Indoor Use	Potable Residential Outdoor Use	Potable Commercial Use	Potable Institutional Use	Potable Industrial/ Stockwater Use	Total Potable Use	Secondary Water Use	Total Indoor Use	Total Outdoor Use	Res. Indoor Return Flow	Commercial Indoor Return Flow	Institutional Indoor Return Flow	Industrial/ Stockwater Indoor Return Flow	Total Indoor Return Flow To Treatment Facility	Pond Evaporation	Treatment Facility Outflow (Indoor) Return Flow	Outdoor Return Flow	Total Return Flow	Total Diversions	Total Depletion
GARFIELD COUNTY																				
Cannonville Town	15.6	13.6	4.3	19.2	4.6	57.3	27.6	27.5	57.4	15.3	3.4	3.8	0.0	22.4	0.0	21.3	19.1	40.4	84.9	44.4
Henrieville	19.6	0.0	0.0	3.0	0.0	22.6	40.9	20.2	43.3	19.2	0.0	0.6	0.0	19.8	0.0	18.8	14.4	33.3	63.5	30.3
Tropic	45.1	27.3	48.5	9.2	0.6	130.7	289.3	86.4	333.7	44.2	38.0	1.8	0.0	84.0	15.3	64.5	111.2	175.7	420.0	244.3
Total Community Systems	80.4	40.9	52.8	31.4	5.2	210.6	357.8	134.1	434.4	78.8	41.4	6.2	0.0	126.3	15.3	104.7	144.8	249.5	568.4	319.0
Non-community Systems	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Self Supplied Industries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Domestic Systems	1.7	3.4	0.0	0.0	0.0	5.0	0.0	1.7	3.4	1.6	0.0	0.0	0.0	1.6	0.0	1.5	1.1	2.7	5.0	2.3
COUNTY TOTALS	82.0	44.2	52.8	31.4	5.2	215.6	357.8	135.7	437.7	80.4	41.4	6.2	0.0	127.9	15.3	106.2	145.9	252.1	573.4	321.3
GRAND COUNTY																				
Day Star Adventist Academy	2.4	0.0	0.3	3.0	1.0	6.7	10.8	4.2	13.3	2.4	0.2	0.6	0.0	3.2	0.0	3.0	4.4	7.4	17.5	10.1
Spanish Valley Water & Sewer	265.1	195.2	112.9	196.0	0.0	769.2	500.0	394.6	874.5	259.8	88.5	38.4	0.0	386.7	0.0	379.0	291.5	670.5	1,269.2	598.7
Moab City Water	446.8	618.9	239.7	660.0	0.0	1,965.5	0.0	770.6	1,194.9	437.9	187.9	129.4	0.0	755.2	0.0	740.1	398.3	1,138.4	1,965.5	827.1
Total Community Systems	714.4	814.1	352.9	859.0	1.0	2,741.3	510.8	1,169.5	2,082.7	700.1	276.6	168.4	0.0	1,145.1	0.0	1,122.1	694.2	1,816.3	3,252.1	1,435.8
Non-community systems, etc.	2.5	5.1	21.3	83.4	0.0	112.4	29.2	36.3	105.3	2.5	16.7	16.4	0.0	35.6	0.0	33.8	35.1	68.9	141.6	72.7
Self Supplied Industries	0.0	0.0	0.0	0.0	0.0	0.0	674.9	674.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	674.9	674.9
Private Domestic Systems	38.6	78.4	0.0	0.0	0.0	117.0	0.0	38.6	78.4	37.8	0.0	0.0	0.0	37.8	0.0	35.9	26.1	62.1	117.0	54.9
COUNTY TOTALS	755.5	897.6	374.2	942.4	1.0	2,970.7	1,214.9	1,919.2	2,266.4	740.4	293.4	184.7	0.0	1,218.5	0.0	1,191.8	755.5	1,947.3	4,185.6	2,238.3
KANE COUNTY																				
Curch Wells SSD	9.7	21.9	0.0	1.6	2.1	35.4	0.0	12.2	23.2	9.5	0.0	0.3	0.0	9.8	0.0	9.6	7.7	17.4	35.4	18.0
Glenn Canyon SSD #1 (Big Water)	37.5	65.7	7.1	12.6	29.9	152.7	0.0	75.6	77.1	36.8	5.6	2.5	0.0	44.8	0.0	43.9	25.7	69.6	152.7	83.1
Total Community Systems	47.2	87.6	7.1	14.2	32.0	188.1	0.0	87.8	100.4	46.3	5.6	2.8	0.0	54.6	0.0	53.5	33.5	87.0	188.1	101.2
Non-community systems, etc.	0.4	0.8	0.0	3.7	0.0	4.9	0.0	1.1	3.8	0.4	0.0	0.7	0.0	1.1	0.0	1.7	1.3	2.3	4.9	2.6
Self Supplied Industries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Domestic Systems	33.3	67.6	0.0	0.0	0.0	101.0	0.0	33.3	67.6	32.6	0.0	0.0	0.0	32.6	0.0	31.0	22.5	53.6	101.0	47.4
COUNTY TOTALS	80.9	156.1	7.1	17.9	32.0	294.0	0.0	122.2	171.8	79.3	5.6	3.5	0.0	88.4	0.0	85.6	57.3	142.9	294.0	151.2
San Juan County																				
Blanding City Municipal Water Sys.	252.1	155.9	86.0	15.0	0.0	509.0	92.8	323.9	277.9	247.0	67.4	2.9	0.0	317.4	114.4	187.1	92.6	279.7	601.8	322.1
Bluff Water & Sewer Users Assn.	24.3	5.9	33.6	1.8	0.0	65.7	0.0	51.6	14.1	23.8	26.3	0.4	0.0	50.5	0.0	48.0	4.7	52.7	65.7	13.0
Eastland Special Service District	8.1	1.0	0.6	1.0	0.0	10.8	0.0	8.8	2.0	8.0	0.5	0.2	0.0	8.6	0.0	8.2	0.7	8.9	10.8	1.9
Monticello Municipal Water System	159.3	169.5	46.4	10.0	0.0	385.3	516.0	198.5	702.8	156.1	36.4	2.0	0.0	194.5	71.0	113.7	234.3	348.0	901.3	553.2
Monument Valley High School	6.7	6.0	0.0	32.2	0.0	44.9	0.0	13.1	31.8	6.6	0.0	6.3	0.0	12.9	0.0	12.2	10.6	22.8	44.9	22.1
Aneth Community	26.9	0.0	5.1	0.2	23.7	55.9	0.0	54.7	1.2	26.4	4.0	0.0	0.0	30.4	0.0	28.9	0.4	29.3	55.9	26.6
Holly Village Community	5.5	0.0	0.0	0.0	0.0	5.5	0.0	5.5	0.0	5.4	0.0	0.0	0.0	5.4	0.0	5.1	0.0	5.1	5.5	0.4
Mexican Hat / Halchita Community	12.6	0.0	4.6	12.0	0.1	29.3	0.0	18.8	10.5	12.3	3.6	2.4	0.0	18.3	0.0	17.4	3.5	20.9	29.3	8.4
Montezuma Creek Community	16.6	0.0	3.1	26.2	4.2	50.1	0.0	28.5	21.6	16.3	2.4	5.1	0.0	23.8	0.0	22.6	7.2	29.8	50.1	20.3
Ojato Community	21.1	0.0	1.7	0.1	0.0	22.9	0.0	22.5	0.4	20.7	1.3	0.0	0.0	22.0	0.0	20.9	0.1	21.1	22.9	1.8
Red Mesa Community	11.1	0.0	0.0	1.0	0.0	12.1	0.0	11.3	0.8	10.9	0.0	0.2	0.0	11.1	0.0	10.5	0.3	10.8	12.1	1.3
Todohaidekani Community	8.4	0.0	0.1	0.0	0.0	8.5	0.0	8.5	0.0	8.2	0.1	0.0	0.0	8.3	0.0	7.9	0.0	7.9	8.5	0.6
San Juan County SSD #1 (Mex. Hat)	2.8	3.0	12.7	3.0	0.0	21.5	0.0	13.5	7.9	2.7	10.0	0.6	0.0	13.3	8.9	3.7	2.6	6.3	21.5	15.2
Spanish Valley Water & Sewer	3.3	2.0	0.0	0.0	0.0	5.3	0.0	3.3	2.0	3.2	0.0	0.0	0.0	3.2	0.0	3.1	0.7	3.7	5.3	1.5
White Mesa (Ute Mountain Ute Tribe)	27.5	0.0	0.0	0.0	0.0	27.5	0.0	27.5	0.0	27.0	0.0	0.0	0.0	27.0	0.0	26.4	0.0	26.4	27.5	1.1
Total Community Systems	586.3	343.4	194.0	102.6	28.0	1,254.2	608.8	790.0	1,073.0	574.6	152.1	20.1	0.0	746.7	194.4	515.8	357.7	873.5	1,863.0	989.5
Non-community Systems, etc.	18.8	38.2	87.5	25.0	0.0	169.5	0.0	93.8	75.7	18.4	68.6	4.9	0.0	91.9	0.0	87.3	25.2	112.5	169.5	56.9
Self Supplied Industries	3.3	6.8	0.0	0.0	515.2	525.3	0.0	518.5	6.8	3.3	0.0	0.0	0.0	3.3	0.0	3.1	2.3	5.4	525.3	519.9
Private Domestic Systems	198.0	402.0	0.0	0.0	0.0	600.0	0.0	198.0	402.0	194.0	0.0	0.0	0.0	194.0	0.0	184.3	134.0	318.3	600.0	281.7
COUNTY TOTALS	806.5	790.3	281.5	127.5	543.2	2,549.0	608.8	1,600.3	1,557.4	790.3	220.7	25.0	0.0	1,036.0	194.4	790.6	519.1	1,309.8	3,157.8	1,848.0
Total 2005	1,724.9	1,888.3	715.5	1,119.2	581.5	6,029.3	2,181.5	3,777.5	4,433.3	1,690.4	561.0	219.4	0.0	2,470.8	209.7	2,174.2	1,477.8	3,652.0	8,210.8	4,558.8

	Potable Use Data
	Secondary Use Data
	Indoor/Outdoor Use Data
	Return Flow Data
	Diversions Data
	Depletion Data

Regular = Sewage Treatment Plant
Bold = Facultative ponds/Lagoons
Bold/Italics = Septic System/Tanks